Figure 3. **A)** The 6-mer DNA primer and template (SEQ ID NO: 3) sequence used to test the incorporation of the 2-amino-2'-deoxyadenosine triphosphate in a polymerase extension reaction. **B)** Phosphorimage of the 20% denaturing PAGE analysis of the polymerase extension reactions. The dATP and dDTP concentrations present in each reaction are indicated. The positions of the ^{32}P-labeled DNA 6-mer and 7-mer products are indicated by arrows. **C)** Graphic representation of the percentage of 6-mer DNA primer converted to 7-mer DNA product as a function of dNTP concentration.

A2

Please replace the paragraph beginning at page 13, line 4, with the following rewritten paragraph:

Figure 4. **A)** The 6-mer DNA primer and template (SEQ ID NO: 3) sequence used to test the incorporation of the 2-thiothymidine triphosphate in a polymerase extension reaction. **B)** Phosphorimage of the 20% PAGE analysis of the polymerase extension reactions. The dTTP and 2-thioTTP concentrations present in each reaction are indicated. The positions of the ^{32}P-labeled DNA 6-mer and 7-mer products are indicated by arrows. **C)** Graphic representation of the percentage of 6-mer DNA primer converted to 7-mer product as a function of dNTP concentration.

A3

Please replace the paragraph beginning at page 13, line 11, with the following rewritten paragraph:

Figure 5. **A)** The 6-mer DNA primer and template (SEQ ID NO: 3) sequences used to test the incorporation of the 2-amino-2'-deoxyadenosine and 2-thiothymidine triphosphate in the polymerase extension reaction. **B)** MALDI mass spectra of the polymerase extension reactions containing the indicated dNTP. Then m/z values for the 6-mer and 7-mer extension products are indicated. **C)** Table summarizing the predicted and measured m/z values for the 6-mer and 7-mer extension products.

A4

Please replace the paragraph beginning at page 13, line 18, with the following rewritten paragraph:

A5

Figure 6. The scheme for generating single-stranded polynucleotides using a primer (SEQ ID NO: 4)/template(SEQ ID NO: 5)- dependent polymerase extension reaction (producing SEQ ID NO: 6) followed by digestion of the template DNA with λ exonuclease.

Please replace the paragraph beginning at page 14, line 1, with the following rewritten paragraph:

A6

Figure 8. Predicted secondary structures for three related 56-polynucleotide sequences containing either the four natural (A, G, C, T) nucleotides (SEQ ID NO: 7, SEQ ID NO: 9, and SEQ ID NOS: 11) or the 2-amino-2'-deoxyadenosine (D) and 2-thiothymidine (S) nucleotide substitutions (SEQ ID NO: 8, SEQ ID NO: 10, and SEQ ID NOS: 12).

Please replace the paragraph beginning at page 14, line 14, with the following rewritten paragraph:

A7

Figure 11. The DNA primer and template (SEQ ID NO: 13, SEQ ID NO: 14, SEQ ID NO: 6, and SEQ ID NO: 15) sequences used to test the effect of the polynucleotide secondary structure on the polymerase extension reaction. The arrows indicate the direction of the polymerase extension reaction. Sequences in bold in the first three templates are derived from the primer shown in Figure 6 for the polymerization reaction used to generate each single-stranded template.

In the Claims:

Amend claims 1, 3-8, and 10 to read as follows.

Cancel claim 9.

Add claims 19-24.